

tensive and intimate, ever since 1866, when I first met Darwin and Huxley," he said: "In later years, many leaders of English science were my students here at the university; notably Ray Lancaster, Director of the British Museum, and Balfour. Huxley was the ablest Englishman I ever knew. He was far keener than Darwin. Sir John Murray, Lubbeck, Argyle, Lyell and Tyndall were my personal friends.

"In 1876 I undertook the execution of the 'Challenger Expedition' report on *Radiolaria* and the *medusen*. I gave twelve years to that work. The English Government spent five million dollars on this expedition and its reports.

"It was in 1881 that I made a visit of research to Ceylon. It is strange, but looking back now, to that time, I recall the envy of the English out there because of the superiority of the German ships over their own, even forty years ago. The English are blind in their self-appreciation. They can conceive of no other leadership than their own, in science as well as world-power, not to mention sports and personal refinement. And this is a dangerous mental attitude for a nation to have, as we see in the story of other aggressive peoples of history, notably the Greeks, the Romans, the Spaniards, and the French!"

Continuing and referring more directly to France, Haeckel said: "From 1830 on to his death, Darwin, as a scientist, never recognized France. He considered her fickle and superficial! And it is true that this country offered little to the world, scientifically, in the last half of the nineteenth century. Intensification of sex-expression, yes, and this is something in the biological world, if not perverted. But otherwise very little. Pasteur was certainly a great experimenter, but not a thinker. Her first philosopher today is Bergson, a Polish Jew, by the way, an actor and a good speaker; but also not an original thinker. In other words, an imitator."

I did not attempt to take issue with my distinguished host in his references to France; but the names of a number of her eminent savants came to my mind: such as Claude Bernard, Ampère, Moissan, Becquerel, the mathematician Poincaré, and so on, feeling that Haeckel was seeing through the prejudiced light of an English animosity of Darwin's time, with regard to France; or, on the other hand, the red glare of war-patriotism, which he had not escaped, any more than the rest of us.

He spoke also of Madam Curie, the discoverer of radium, also a Pole, as having brought to success certain suggestions of Professor William Roentgen.

"But I suppose you would like me to take up the questions of your letter."

He laid my list of queries out before him and said: "I will answer the first and second interrogatory as one, as they seem to me to mean the same thing. You ask:

"First: *What natural condition, biological or sociological, would necessarily be precedent to such a struggle as the present war?* and:

"Second: *What does the war mean and how can it be accounted for, if at all, from the standpoint of evolution?*

"We see clearly," he began, "in the present world war, the operation among ourselves, of the biological law of the survival of the fittest, *der Kampf ums Dasein*." Waving his hand out toward the beautiful valley of the Saale, which lay beneath our terrace, this grey old relic of the nineteenth century continued: "Upward of twelve million years ago this valley was teeming with a great and superior population—a reptilian life—the highest and most adaptable species the world had known up to that time. They were the conquerors and colonizers of their day—the *sauria*—and yet, through the inevitable law of survival, it was compelled to give way to what seems, through habit of thought, an inferior race, the *mamalia*, and so down the ages the struggle continued until today we come to man. Forever, throughout the history of nature, it is the less efficient, the weak, the comparatively useless that must succumb to the strongest and the most adaptable.

"England announces that the law of necessity, of survival, makes the destruction of Germany imperative to her. I do not blame her for her struggle to maintain leadership. It is the age-old and tragic challenge in the night—the challenge of the *dinosaur* to the *saber-toothed tiger*. It is the night-time of the twentieth century. Shall the *sauria* survive for a space, or has the day of the *mamalia* arrived? We shall see. The survival of the fittest does not mean, nor must it always be, the best. It is the strongest, the most adaptable; and where the most adaptable survives, in such a combat as war even in the most weakened and minority state, eventually it will conquer over the big and less adaptable; for adaptability will count more than strength alone. Men, whether Englishmen or German, are the same. In such a struggle, it is not man against man, but idea against idea. And in my judgment, the present fight will evolve, in the end, into a contest of two great principles in human evolution. Two separate schemes of civic adaptability; that of individualism on the one hand, and that of state socialism or civic collectivism on the other. If neither one of these ideas as a great governing force be destroyed, the contest will go on, and the principle most

adaptable to the ideals and development of the race will survive and reign, until environment demands another change.

"Change—Ah! There's the secret! As the Greek philosophy has it: '*Panta Rhy—Alles Fließt!*' The operation of the law of change in human life, in human ambitions; this is creation. This is growth, development. New conditions, new relations, the necessity for self-preservation, and adaptation, with its ensuing struggle, accounts for all progress as well as all destruction. Wars between men and nations do not decide the problem of advancement. It is war against conditions and environment. And whether one nation wins or loses in the outward aspect of this present conflict, it will not necessarily determine the question of the great principle which has made the war inevitable.

"What is that principle? Let us see! Since the beginnings of social life on the earth, the institution contributing most to the advancement of civilization has been that of the private ownership of property. The great driving thought of man, 'What is mine and what is ours,' has possibly reached its zenith, and glacier-like, commences to dissolve, to change, to melt under the warmer sun of fellowship. The fight to acquire and to hold is intensified. Forced by the economic ideals of the age, men and nations go out armed, to capture land, gold, coal and iron and even the seas, and the struggle begins. Individualism in men and races asserts itself. Destruction follows. But in this destruction the smudge of dust on the mirror of Truth is made a little less dense, and the law of Adaptability finally supervenes.

"I think, in its purely human analysis, that the war is a meeting and kind of cosmic struggle between the principle of individualism, as finding its highest expression in England; and state socialism, or progressive collectivism, as illustrated in modern Germany.

"To your third question: *What does the war promise or threaten to mankind in the way of progress or retrogression?*

"Let me answer briefly, that I believe it means progress. But I am shocked by the fact of highly educated and developed men being forced to face Senegal Negroes, Turcos, Shiks, and Gurkas. Of an average attendance here at the university of two thousand students, there are now less than five hundred enrolled. Those left behind are the lame, the halt and the blind. This is the most hideous thing in the war. A single unit of intelligence, of a value as a thousand to one, from a sociological point of view, pitted against the undeveloped black men of the far away lands of the world, all more or less equalized by the rifle and the bayonet.

"To your fourth question: *What is the relative value to the race, as a factor in evolution, of a culture of the hand and brain on the one side, and a culture of the heart on the other?*

"I will say that they must not separate, but must go always hand in hand, as is the case here in Germany."

"Your fifth question: *Has Germany's scientific and material culture outstripped her culture of the heart?*

"No! Certainly not! By no means. What we are doing for our wounded and the enemy wounded will attest our heart activity. Wounded prisoners and their evidence in this connection will serve as our best witnesses. Their testimony will stand, while the government reports, during the war, will be forgotten. These reports are fabricated for the special purpose of the war. The truth alone can live.

"For your sixth question: *Is Germany to continue giving the world more Goethes, Beethovens, and Kants, or only Gutenbergs, Haeckels, Roentgens and Ehrlichs?*



Combination Plant and Animal Life of the Sea as sketched by Professor Haeckel. Secretary Adece, of the State Department, has also photographed and classified something like one thousand different forms of Microscopic Creatures.

"I do not think there is any danger there. The world may look, with confidence, for both.

"You ask in your seventh question: *Where would Krupp and the Sheffield and Bethlehem ammunition makers be classified in the culture category?*

"They can be good or bad. Krupp has made the greatest development in steel in its whole history. It is manufactured for a thousand purposes. The Krupps had, as I know, the special ambition to exploit the steel industry as a means to cultural progress.

"Eighth question: *Does nature furnish any prominent example of growth, evolution or progress without struggle, combat and destruction?*

"No! There is no such example in the world, nor in the universe. The law of the struggle for existence is general in the realms of astronomy, chemistry, physics, zoology and biology. In the human body this

conflict and destruction is between the cells, germs and bacteria. In civilized society it is between states, and whole peoples. War is a delirium of society. It kills and cures at the same time; destroys the old, the non-adaptable; strengthens the new and adaptable. A nation may be purified through defeat in war, and from its new condition march farther and faster than its victor, weighted with old and dying ideals.

"Ninth question: *How do you account for the wide conviction of man that the world may move on toward perfection through peace, rather than war?*

"War must always be there, but it will be of another nature, another kind. The contest or rivalry may take a higher form than that of the destruction of life among civilized men. It must be in the nature of intellectual and industrial competition. That was Darwin's answer to this question. It is likewise the answer today. We think, because we approach nearer to a condition of the supremacy of reason with each revolution of the earth upon its center, that the most recent war will be the last between men.

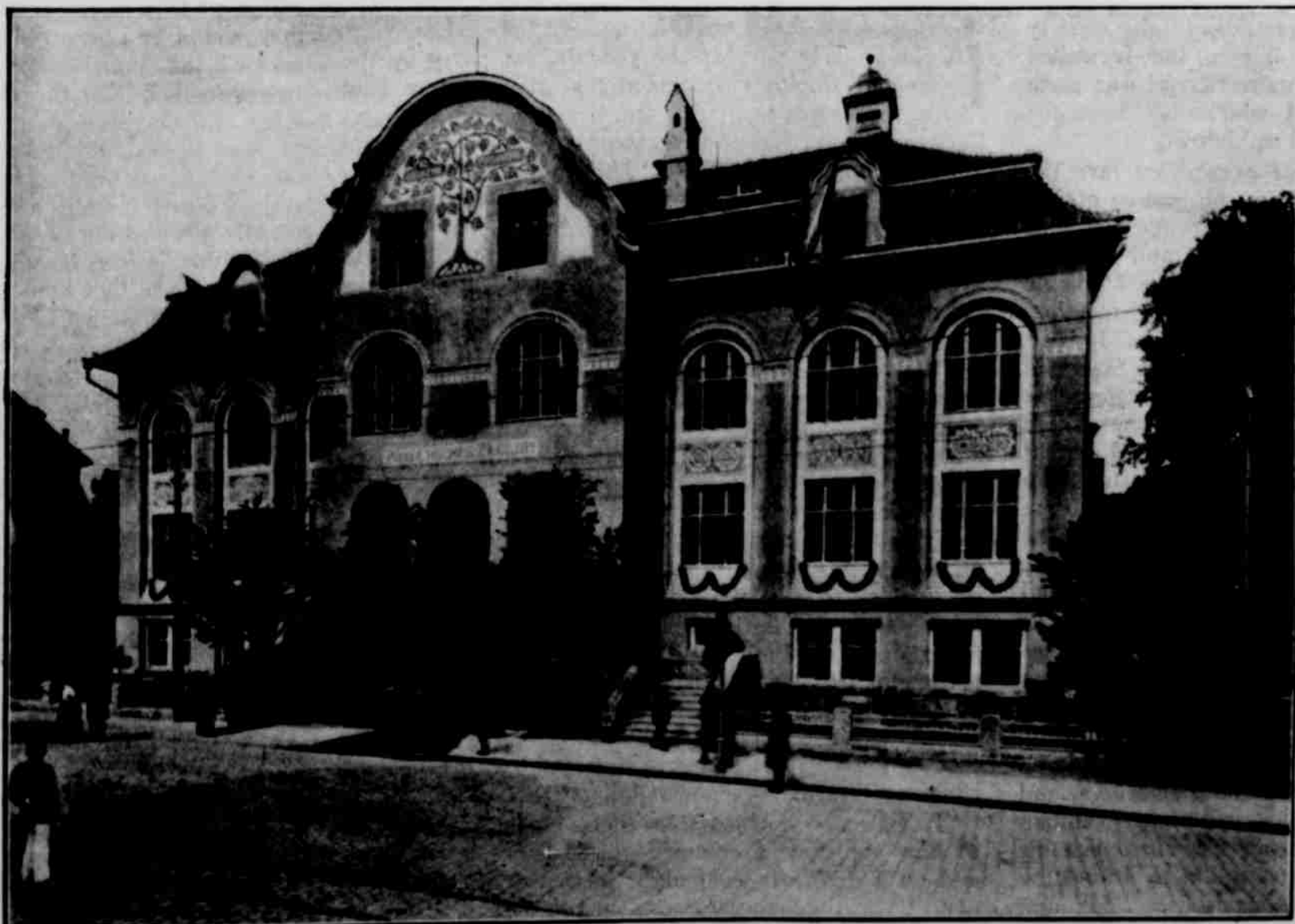
"Tenth question: *Do you consider that each great war between individuals, nations and races, has marked a higher step for mankind or civilization?*

"One cannot say. Certainly there will be much that is better. The world will be infinitely more economical for one thing, and for another humanity will be knitted more closely together in the end. When the fever has subsided, and the need for one another becomes apparent, the pendulum will swing back to another extreme, perhaps. There will be a great readjustment of life and relationship between nations and between men. If Germany, in her present war of defence of German nationalism, can demonstrate the superiority of her system of the application of state socialism to the administration of the affairs of a country, I think, while the spirit of nationalism may become weakened, the principle of the one-ism of the race will become immensely strengthened by such an example.

"There may come out of the war a brotherhood, or an approach to a brotherhood of the nations of the Earth, where reason, justice and law shall reign between all, both strong and weak, rather than force, tradition and national pride.

"After all, Germany's battle now, as it has been for a thousand years, is a struggle to maintain her union. So far as she is concerned, whether in victory, or in defeat, this is the all important thing for the German people. But what does it all mean? Every

evening, I look out upon the heavens, and ask this question. Five hundred million fixed stars beckon to me resting for a space here on this speck of dust, the Earth. War is there also, and forever *Der Kampf ums Dasein!*"



The Haeckel Museum of Evolution, at Jena, which contains the most complete demonstration of "Darwinism" in the world.

(The notes from which this article and interview are written were taken in 1916. Owing to illness on the part of the writer the interview was not prepared at that time. The entry of America into the war, later on, made its publication untimely. But the recent death of this distinguished colleague and co-worker of Darwin may now give interest to what was probably the last public utterance of the great biologist and author of "The Riddle of the Universe." Further, in Haeckel's closing remarks, at the end of the interview, he forecasts a brotherhood of nations as a possible result of the war.—R. J. T.)